

CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (previously presented) A method of processing a web service description so that said web service description is adapted for use with a mobile device, said web service description comprising a plurality of web service description elements, wherein said method is performed at a computing device remotely coupled to the mobile device, said method comprising:

receiving a first web service description file comprising said web service description, wherein said web service description defines an interface to a web service;

creating at least one accelerator output file from said web service description, said creating comprising optimizing said web service description for said mobile device, wherein said at least one accelerator output file comprises a second web service description file, said second web service description file comprising an optimized web service description adapted for processing by said mobile device; and

transmitting said at least one accelerator output file to said mobile device, wherein said at least one accelerator output file facilitates invocations of said web service by said mobile device;

wherein said optimizing comprises resolving symbolic references in said web service description of said first web service description file such that said at least one accelerator output file is parseable by said mobile device in one pass; and

wherein said resolving comprises

representing the plurality of web service description elements as nodes in a graph,

re-ordering the nodes into a tree data structure so that said symbolic references are resolved in a forward direction, and
creating said at least one accelerator output file from said tree data structure.

2. (previously presented) The method of claim 1, wherein both said web service description of said first web service description file and said optimized web service description of said second web service description file are in Web Service Description Language.

3. (original) The method of claim 1, wherein invocations of the web service by the mobile device are performed in accordance with a Simple Object Access Protocol.

4. (cancelled).

5. (cancelled).

6. (previously presented) The method of claim 1, wherein each of a subset of said plurality of web service description elements is associated with transport protocols not supported by said mobile device, and wherein said optimizing further comprises identifying said subset, and excluding said subset from said at least one accelerator output file.

7. (previously presented) The method of claim 1, wherein said optimizing further comprises modifying one or more names associated with each of one or more web service description elements.

8. (previously presented) The method of claim 1, further comprising validating said at least one accelerator output file.

9. (previously presented) The method of claim 1, further comprising processing said at least one accelerator output file by identifying web service description

elements that define inputs to said web service, a destination, and a format for said inputs from said optimized web service description.

10. (original) The method of claim 9, further comprising invoking said web service by transmitting input data to said destination in said format.

11. (previously presented) The method of claim 10, further comprising receiving output data from said web service in response to said invoking.

12. (previously presented) The method of claim 1, wherein said optimizing further comprises extracting invocation information from said web service description, and storing said invocation information.

13. (original) The method of claim 12, further comprising processing said at least one accelerator output file by identifying web service description elements that define inputs to said web service and obtaining operation parameters based on said inputs.

14. (original) The method of claim 13, further comprising generating input data by combining said operation parameters with said invocation information.

15. (original) The method of claim 14, further comprising invoking said web service by transmitting said input data to said web service.

16. (previously presented) The method of claim 15, further comprising receiving output data from said web service in response to said invoking.

17. (original) The method of claim 1, wherein said at least one accelerator output file comprises code adapted for execution on said mobile device, for obtaining input data used to invoke said web service, and for invoking said web service using said input data.

18. (previously presented) The method of claim 17, wherein said creating comprises:

identifying web service description elements that define inputs to said web service from said web service description;

producing first instructions for generating a user interface to prompt a user for one or more of said inputs to said web service;

producing second instructions for obtaining input data associated with said one or more inputs;

identifying web service description elements that define a destination and a format for said inputs to said web service; and

producing third instructions for invoking said web service by transmitting said input data to said destination in said format.

19. (previously presented) The method of claim 18, wherein said creating further comprises:

identifying web service description elements that define outputs from said web service in response to invocations of said web service and a format for said outputs from said web service description; and

producing fourth instructions for receiving output data in said format from said web service.

20. (previously presented) The method of claim 19, wherein said creating further comprises:

producing fifth instructions for outputting output data received from said web service to said user.

21. (previously presented) The method of claim 17, wherein said creating further comprises compiling instructions produced at said creating into said code.

22. (original) The method of claim 21, wherein said code represents an executable Java application.

23. (original) The method of claim 17, further comprising processing said at least one accelerator output file by executing said code.

24. (currently amended) A web services accelerator comprising a processor, which ~~wherein said web services accelerator~~ resides on a computing device in a network in which said computing device is coupled to a mobile device, wherein ~~said web services accelerator is programmed~~ processor is configured to perform a method of processing a web service description so that said web service description is adapted for use with said mobile device, said web service description comprising a plurality of web service description elements, said method comprising:

receiving a first web service description file comprising said web service description, wherein said web service description defines an interface to a web service;

creating at least one accelerator output file from said web service description, said creating comprising optimizing said web service description for said mobile device, wherein said at least one accelerator output file comprises a second web service description file, ~~said second web service description file comprising an~~ optimized web service description adapted for processing by said mobile device; and

transmitting said at least one accelerator output file to said mobile device, wherein said at least one accelerator output file facilitates invocations of said web service by said mobile device;

wherein said optimizing comprises resolving symbolic references in said web service description of said first web service description file such that said at least one accelerator output file is parseable by said mobile device in one pass; and wherein said resolving comprises

representing the plurality of web service description elements as nodes in a graph,

re-ordering the nodes into a tree data structure so that said symbolic references are resolved in a forward direction, and

creating said at least one accelerator output file from said tree data structure.

25. (currently amended) The web services accelerator comprising the processor of claim 24, wherein both said web service description of said first web service description file and said optimized web service description of said second web service description file are in Web Service Description Language.

26. (currently amended) The web services accelerator comprising the processor of claim 24, wherein invocations of the web service by the mobile device are performed in accordance with a Simple Object Access Protocol.

27. (cancelled).

28. (cancelled).

29. (currently amended) The web services accelerator comprising the processor of claim 24; wherein each of a subset of said plurality of web service description elements is associated with transport protocols not supported by said mobile device, and wherein said optimizing further comprises identifying said subset, and excluding said subset from said at least one accelerator output file created at said creating.

30. (currently amended) The web services accelerator comprising the processor of claim 24, wherein said optimizing further comprises modifying one or more names associated with each of one or more web service description elements.

31. (currently amended) The web services accelerator comprising the processor of claim 24, wherein said method further comprises validating said at least one accelerator output file.

32. (currently amended) The web services accelerator comprising the processor of claim 24, wherein said optimizing comprises extracting invocation information from said web service description, and storing said invocation information.

33. (currently amended) The web services accelerator comprising the processor of claim 32, wherein said method further comprises obtaining operation parameters based on said inputs from said mobile device.

34. (currently amended) The web services accelerator comprising the processor of claim 33, wherein said method further comprises generating input data by combining said operation parameters with said invocation information.

35. (currently amended) The web services accelerator comprising the processor of claim 34, wherein said method further comprises invoking said web service by transmitting said input data to said web service.

36. (currently amended) The web services accelerator comprising the processor of claim 35, wherein said method further comprises receiving output data from said web service in response to said invoking.

37. (currently amended) The web services accelerator comprising the processor of claim 36, wherein said method further comprises transmitting at least a subset of said output data to said mobile device.

38. (currently amended) The web services accelerator comprising the processor of claim 24, wherein said method further comprises receiving input data from said mobile device and invoking said web service by transmitting said input data to said web service.

39. (currently amended) The web services accelerator comprising the processor of claim 38, wherein said method further comprises receiving output data from said web service in response to said invoking and transmitting said output data to said mobile device.

40. (currently amended) The web services accelerator comprising the processor of claim 39, wherein said method further comprises detecting changes to said

output data from said web service in response to said invoking and transmitting said changes to said mobile device.

41. (currently amended) The web services accelerator comprising the processor of claim 24, wherein said at least one accelerator output file comprises code adapted for execution on said mobile device, wherein said code comprises instructions for obtaining input data used to invoke said web service, and for invoking said web service using said input data.

42. (currently amended) The web services accelerator comprising the processor of claim 41, wherein said creating comprises:

- identifying web service description elements that define inputs to said web service from said web service description;

- producing first instructions for generating a user interface to prompt a user for one or more of said inputs to said web service;

- producing second instructions for obtaining input data for said one or more inputs;

- identifying web service description elements that define a destination and a format for said inputs to said web service; and

- producing third instructions for invoking said web service by transmitting input data to said destination in said format.

43. (currently amended) The web services accelerator comprising the processor of claim 42, wherein said third instructions comprise instructions for receiving said input data from said mobile device and transmitting said input data to said web service.

44. (currently amended) The web services accelerator comprising the processor of claim 43, wherein said creating further comprises:

- identifying web service description elements that define outputs from said web service in response to invocations of said web service and a format for said outputs from said web service description; and

producing fourth instructions for receiving output data in said format from said web service.

45. (currently amended) The web services accelerator comprising the processor of claim 44, wherein said creating further comprises:

producing fifth instructions for outputting output data received from said web service to said user.

46. (currently amended) The web services accelerator comprising the processor of claim 45, wherein said fifth instructions comprise instructions for receiving said output data from said web services and for transmitting said output data to said mobile device.

47. (currently amended) The web services accelerator comprising the processor of claim 46, wherein said method further comprises detecting changes to said output data from said web service in response to said invoking and transmitting said changes to said mobile device.

48. (currently amended) The web services accelerator comprising the processor of claim 35, wherein said creating further comprises compiling instructions produced at said creating into said code.

49. (currently amended) The web services accelerator comprising the processor of claim 35, wherein said code represents an executable Java application.

50. (currently amended) A storage media comprising program computer-readable medium upon which a set of software components is stored, the software components containing instructions for performing, which are executable at a computing device remotely coupled to a mobile device^{[[,]]} to implement a method of processing a web service description so that said web service description is adapted for use with said mobile device, said web service description comprising a plurality of web service description elements, said method comprising:

receiving a first web service description file comprising said web service description, wherein said web service description defines an interface to a web service;

creating at least one accelerator output file from said web service description, said creating comprising optimizing said web service description for said mobile device, wherein said at least one accelerator output file comprises a second web service description file, said second web service description file comprising an optimized web service description adapted for processing by said mobile device; and

transmitting said at least one accelerator output file to said mobile device, wherein said at least one accelerator output file facilitates invocations of said web service by said mobile device;

wherein said optimizing comprises resolving symbolic references in said web service description of said first web service description file such that said at least one accelerator output file is parseable by said mobile device in one pass; and

wherein said resolving comprises

- representing the plurality of web service description elements as nodes in a graph,
- re-ordering the nodes into a tree data structure so that said symbolic references are resolved in a forward direction, and
- creating said at least one accelerator output file from said tree data structure.